UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,885	03/14/2007	Martin Pera	2354/380	3366

26774 7590 03/21/2011

NIXON PEABODY LLP - PATENT GROUP
1100 CLINTON SQUARE
ROCHESTER, NY 14604

EXAMINER	
BELYAVSKYI, MICHAIL A	
ART UNIT	PAPER NUMBER
1644	
MAIL DATE	DELIVERY MODE
03/21/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,885	PERA ET AL.	
	Examiner	Art Unit	
	MICHAIL BELYAVSKYI	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *109-113,117-121,170,172-175 and 177-181* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *109-111,113,117-120,170-174 and 177-180* is/are rejected.

7)☒ Claim(s) *112, 121, 175 and 181* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

RESPONSE TO APPLICANT'S AMENDMENT

1. Applicant's amendment, filed 02/10/11 is acknowledged.

Claims 109-113, 117-121, 170, 172-175, 177-181 are pending.

Claims 109-113, 117-121, 170, 172-175, 177-181 drawn to an isolated antigen-binding protein that inhibits the binding to a hepatic stem cell of GCTM-5 antibody are under consideration in the instant application.

In view of the amendment, filed 02/10/11 the following rejections remain:

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 109-111, 113, 117-120, 170-174, 177-180 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention for the same reasons set forth in te previous Office Action, mailed on 08/10/10.

Applicant's arguments, filed 02/10/11 have been fully considered, but have not been found convincing.

Applicant assert that the amended claims are related to antigen-binding proteins that compete with GCTM-5 antibody for binding to hepatic stem cells. Said claims have adequate written support in the instant specification.

Contrary to Applicant's assertion, as has been stated previously:

Applicant is in possession of : GCTM-5 antibody or antigen binding fragment of said antibody, wherein GCTM-5 antibody is produced by a hybridoma having ECACC accession number 03101603.

Applicant is not in possession of : Any antigen-binding proteins that inhibits the binding to a hepatic stem cells GCTM-5 antibody.

The claimed invention is drawn to a genus of antigen-binding proteins, that can binds to a marker on hepatic stem cells wherein said marker is only defines as polypeptide which migrates in a SDS-PAGE gel with apparent molecular weigh of 50 KDa and includes a GCTM-5 epitope. The structural identifying characteristics of the genus are not disclosed. There is no evidence that there is any per se structure/function relationship between the disclosed monoclonal antibody produced by the hybridoma ECACC accession number 0310160 or an antigen binding fragment of said antibody and any others that might be found. The specification does not disclosed any amino acid sequences of cell marker tthat is capable of binding to GCTM-5 antibody or and amino-acid of claimed antibody that specifically recognize and binds to any cells marker, wherein the cell marker is capable of binding to a GCTM-5 antibody The Specification only provides hybridoma having ECACC accession number 03101603 which produces the particular GCTM-5 antibody.

As has been stated above, Applicant only characterized the cell marker as a polypeptide which migrates in a SDS-PAGE gel with apparent molecular weigh of 50 KDa. It is well known in the art the discrepancies of molecular weight determination are common depending on the particular method used, e.g. whether by sodium dodecyl sulphate polyacrylamide gel electrophoresis, gel filtration or some other method, and it is well known to the skilled artisan that variations in running conditions (voltage, time) and other factors such as salt concentration in the sample, and environmental conditions such as gel heating and dissolution of CO_2 from air into the buffer can alter the pH and/or the gel characteristics causing wide variations in the apparent isoelectric point.

The Specification provides no correlation between structure and function that would allow those skill in the art to recognized other members of the claimed genus of any isolated detector of a cell type which identifies on the cell type a cells marker and had not provided the necessary predictive information – "nothing about the structure, epitope characterization, binding affinity, specificity, or pharmacological properties common to the large family of antibodies implicated by the method."

It has been previously held in a similar context that "a patentee of a biotechnological invention cannot necessarily claim a genus after only describing a limited number of species because there may be unpredictability in the results obtained from species other than those specifically enumerated." Noelle v. Lederman, 355 F.3d 1343, 1350 (Fed. Cir. 2004).

Applicant has disclosed a limited number of species; therefore, the skilled artisan cannot envision all the contemplated amino acid sequence possibilities recited in the instant claims. Consequently, conception in either case cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. The sequences themselves are required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993).

A description of what a material does rather than of what it is, usually does not suffice. The patent does not more than describe the desired function of the compound called for and contains no information by which a person of ordinary skill in the art would understand that the inventors possessed the claimed invention. At best, it simply indicates that one should run tests on a wide spectrum of compounds in the hope that at least one of them will work. Inadequate written description that merely identifies a plan to accomplish an intended result "is an attempt to preempt the future before it has arrived" Fiers v. Revel, 984 F.2d 1164,1171 9Fed.Cir. 1993).

The claimed composition of matter defined only by its biological activity or function is insufficient to satisfy 35 U.S.C. 112, first paragraph.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.

Applicant is directed to the Revised Guidelines for the Examination of Patent Applications Under the 35 U.S.C.112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No.4, pages 1099-1111, Friday January 5, 2001).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 109-111, 115-120, are rejected under 35 U.S.C. 102(b) as being anticipated by Emerson et al(Blood, 1989, v.74, pages 49-55) for the same reasons set forth in the previous Office Action, mailed on 05/06/09.

Applicant's arguments, filed 10/06/09 have been fully considered, but have not been found convincing.

Applicant asserts that Emerson et al., refers to an antibody that specifically binds to erythroid progenitor cells, not the claimed hepatic stem cells.

The Examiner disagrees with Applicant's interpretation of Emerson et al., Applicant's attention is respectively drawn to page 49, left column of Emerson et al. It is explicitly stated that " we raised a murin monoclonal antibody **against enriched fetal liver progenitor cells**. This antibody reacts with the Epo-responsive GM-CSF/IL-3 independent fraction of adult BM **but does not detect any erythroid progenitors"** (emphases added).

As has been stated previously, Emerson et al., teaches a monoclonal antibodies, that can binds to surface membrane proteins expressed on the surface of proliferation liver progenitor cell (see entire document, Abstract and Materials and Method in particular). It is noted that the reference is silent about the recited antibody binding to the marker characterized by binding to a GCTM-5 antibody, as recited in the instant claims. It is noted however, that the instant specification disclosed that GCTM-5 antibody recognized an epitope expressed on proliferation liver progenitor cells (see pages 6 and 8 in particular). The structural identifying characteristics of said epitope are not disclosed. Thus, the recited and instantly claims antibodies can recognized the same cell markers expressed on the surface proliferation liver progenitor cell Since the office does not have a laboratory to test the reference antibodies, it is applicant's

The reference teaching anticipates the claimed invention.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 170, 172- 174 and 177-180 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Emerson et al(Blood, 1989, v.74, pages 49-55) in view of U.S. Patent No. 4,281,061 for the same reasons set forth in the previous Office Action, mailed on 05/06/09.

Applicant's arguments, filed 10/06/09 have been fully considered, but have not been found convincing.

Applicant assert that since Emerson et al., is not a prior art reference it can not be used in 103 type of rejection.

Contrary to Applicant's assertion, as has been stated supra, it is the Examiner position that Emerson et al., is a prior art reference and thus can be used in 103 rejection.

Emerson et al ., do not teach a kit comprising a detector of a cell type which identifies on the cell type a cell marker, characterized by binding to a GCTM-5 antibody.

US Paten '061 teaches that reagents of the pharmaceutical compositions can be provided as kits as a matter of convenience , optimization and economy of the users (see col 22, line 62 - col 23, line 4 in particular).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the teaching of US Paten '061 to those of Emerson et al ., to obtain a claimed kit comprising a detector of a cell type which identifies on the cell type a cell marker, characterized by binding to a GCTM-5 antibody.

One of ordinary skill in the art at the time the invention was made would have been motivated to do so, because assemble the reagents in a kit format a matter of convenience , optimization and economy of the users as taught by US Paten '061 and the detector taught by Emerson et al ., can be in a pack or a kit for convenience and economy.

It is noted the only active ingredient in the claimed kit is a detector of a cell type which identifies on the cell type a cell marker, characterized by binding to a GCTM-5 antibody.

Although the kits comprise instructions, there is no patentable weight given to the instructions themselves. It would have been prima facie obvious to the ordinary artisan to include a piece of paper in the kit identifying the components therein at the time the invention was made.

It is noted that the written material in the instructions is not considered to be within the statutory classes and does not carry patentable weight. See MPEP 706.03(a). Also, see In re Haller 73 USPQ 403 (CCPA 1947), where application of printed matter to old article cannot render article patentable and In re Venezia 189 USPQ 49 (CCPA 1976), where kits are drawn to the structural attributes of interrelated component parts and not to activities that may or may not occur. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey , 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963).

From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

The following new ground of rejection are necessitated by the amendment filed 02/10/11

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 109-113, 117-121, 170, 172-175, 177-181 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a New Matter rejection**.

9. " antigen-binding protein that inhibits the binding to a hepatic stem cell of a GCTM-5 antibody" claimed in claim 5 represent a departure from the specification and the claims as originally filed. The passages pointed by the applicant do not provide a clear support for claimed antigen-binding protein that inhibits the binding to a hepatic stem cell of a GCTM-5 antibody. In particular, the Specification on paragraph 0115 only generally disclosed "In yet another aspect of the present invention, there is provided a composition including a detector which recognizes a marker on a sub-population of stem cells, said marker characterized by binding to a GCTM-5 antibody or active fragment thereof and preferably including a GCTM-5 epitope or equivalent, and a pharmaceutically acceptable carrier. Preferably the stem cell is a hepatic stem cell or a pancreatic stem cell. Preferably the detector is a GCTM-5 antibody or fragment.

It is well settled that obviousness is not the standard for the addition of new limitations to the disclosure as filed. It is noted that entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed. Lockwood v. American Airlines Inc., 41 USPQ2d 1961 (Fed. Cir. 1977). New Matter is a written description issue.

10. Claims 112, 121, 175 and 181 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. No claim is allowed.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michail Belyavskyi whose telephone number is 571/272-0840. The examiner can normally be reached Monday through Friday from 9:00 AM to 5:30 PM. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on 571/ 272-0735

The fax number for the organization where this application or proceeding is assigned is 571/273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michail A Belyavskyi/
Primary Examiner, Art Unit 1644